MODEL 1090 DIGITAL OSCILLOSCOPE

SCHEMATICS AND WIRING TABULATIONS

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MODEL 1090 TABULATIONS AND SCHEMATICS

I. CIRCUIT DIAGRAMS

Capacitance values shown are in picofarads unless otherwise indicated.

Signals labeled with a minus sign are at essentially ground potential for "yes," and at about +3.5 volts for "no." For example, the signal RM- is at ground during the command RM (reset M). Signals without the minus sign suffix are active high.

II. WIRING TABULATIONS

The interconnections between panel, circuit boards, and connectors are shown in the wire wrap tabulations which follow. The signal names given for each wire are identifiable by consulting the associated circuit diagrams. In those diagrams, signals whose acronyms are enclosed in a box are signals which enter or leave the circuit boards.

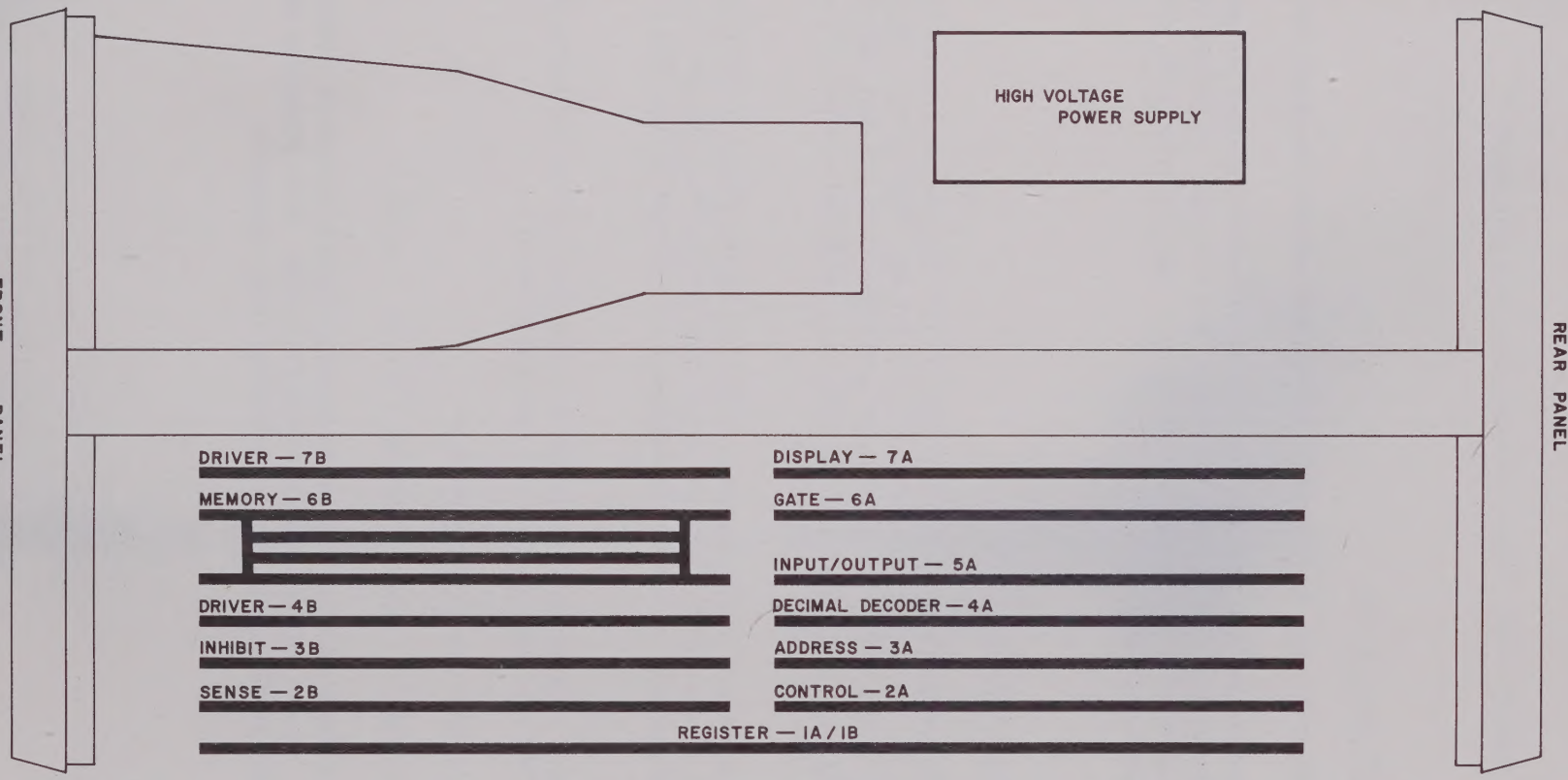
The boards and components are identified by the prefix in the tabulations; for example, 4B-3 refers to circuit board connector 4B, pin 3. The circuit diagrams may be used to determine which circuit board utilizes connector 4B.

The input plug-in unit is identified by the prefix PL-; the power supply by PS-; and the I/O connector on the rear panel by RP-.

In the tabulations an entry such as:

DSWPE 4A-10 5A-24 6A-61 7A-34

indicates that the signal DSWPE is wire-wrap connected between connectors 4A, 5A, 6A, and 7A at the numbered pins indicated. Each connector pin is numbered with small numerals on the bottom of the connector.

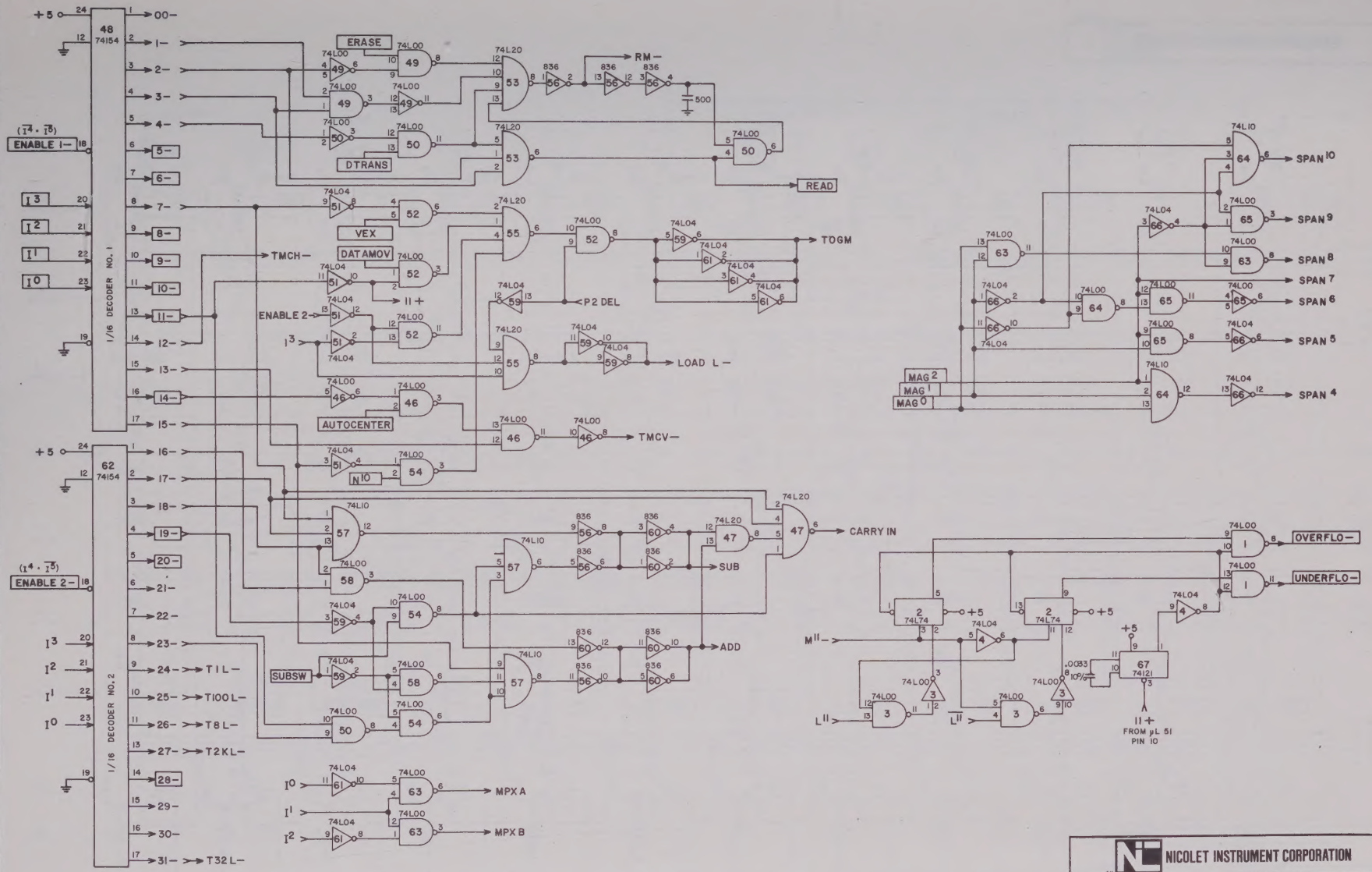


NICOLET INSTRUMENT CORPORATION

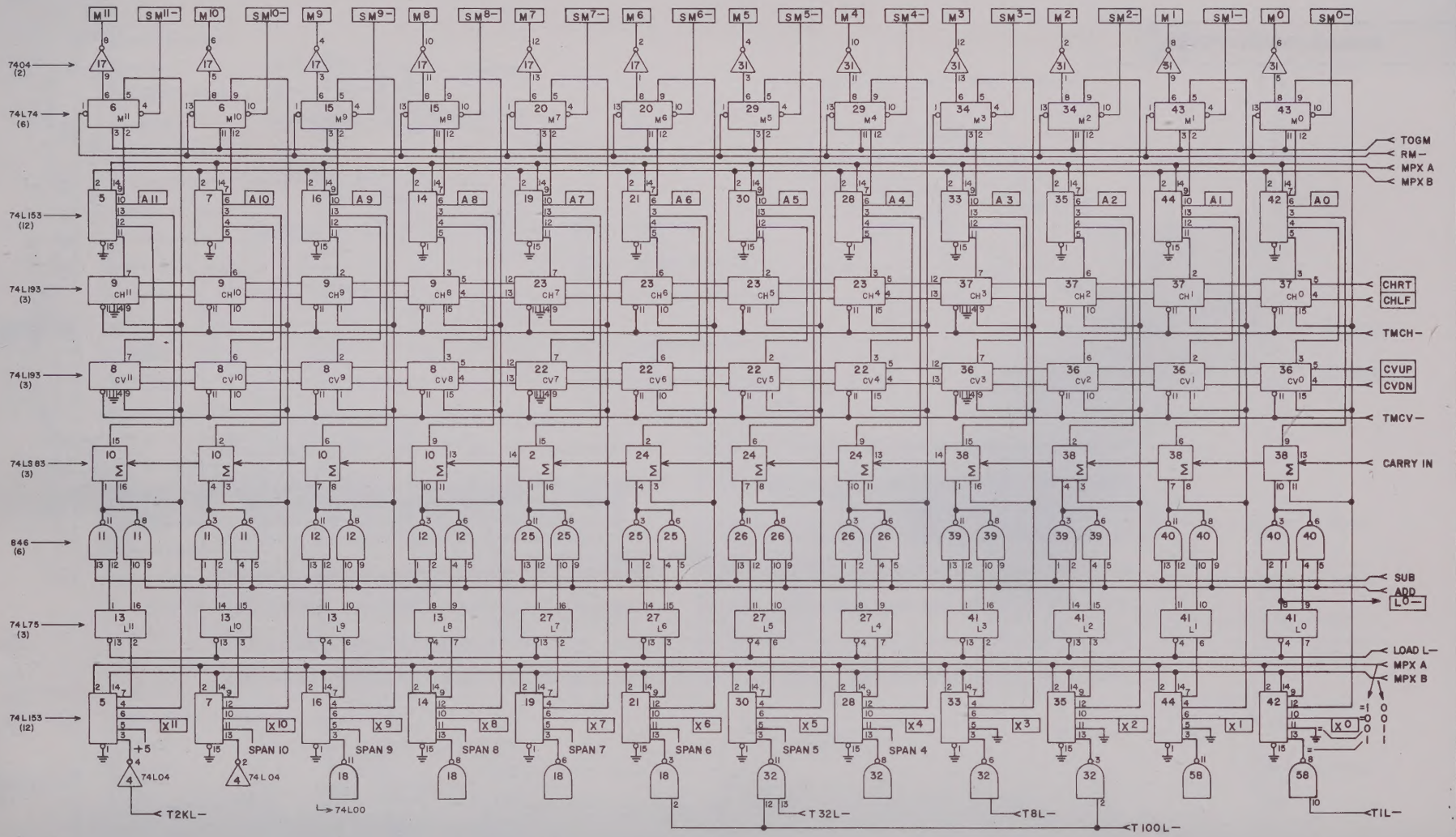
TITLE

BOARD PLACEMENT DIAGRAM

CODE IDENT. NO.	SIZE	DWG. NO.
	C	
SCALE		SHEET 1 of 1



NICOLET INSTRUMENT CORPORATION			
TITLE: 1090/1020 REGISTER BOARD 1A/1B			
CODE IDENT. NO.	SIZE C	DWG. NO.	
SCALE		SHEET 1 of 2	

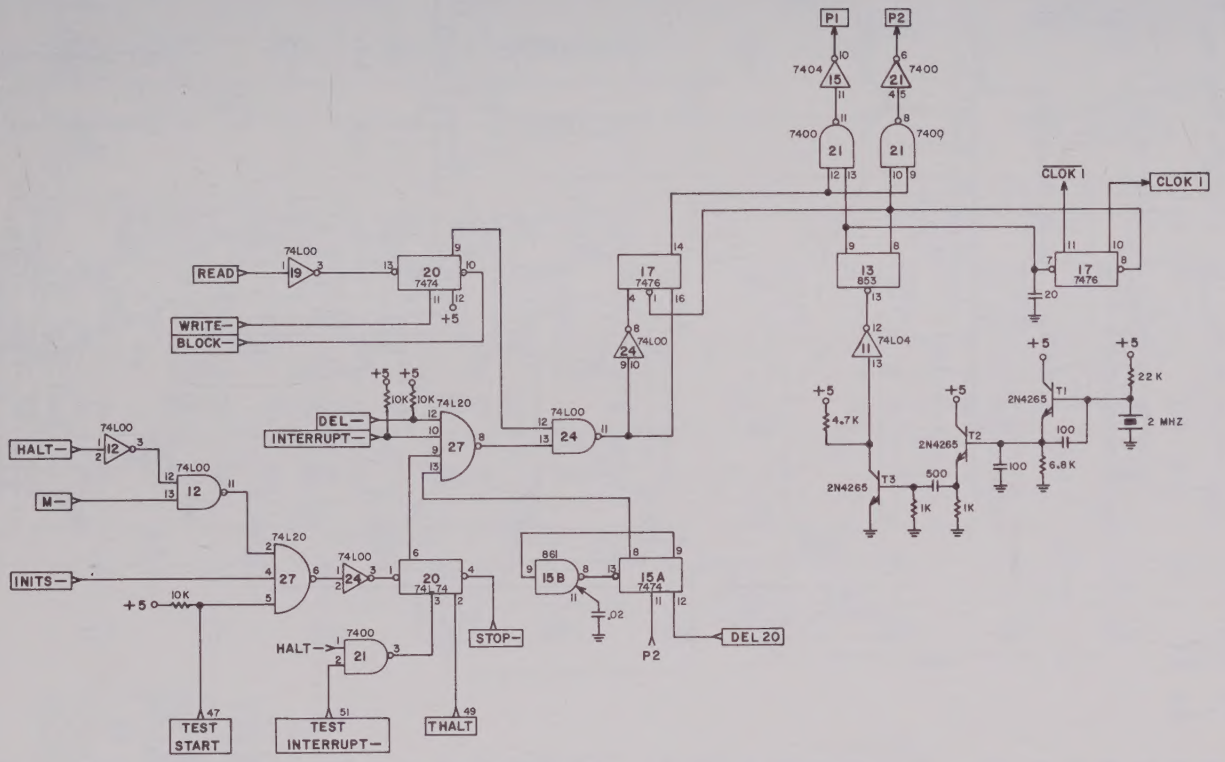


NICOLET INSTRUMENT CORPORATION

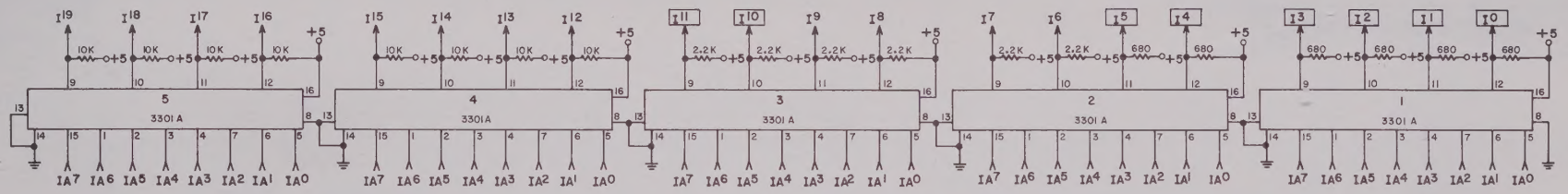
TITLE

1090/1020 REGISTER BOARD 1A / 1B

CODE IDENT. NO.	SIZE	DWG. NO.
	C	
SCALE		SHEET 2 of 2

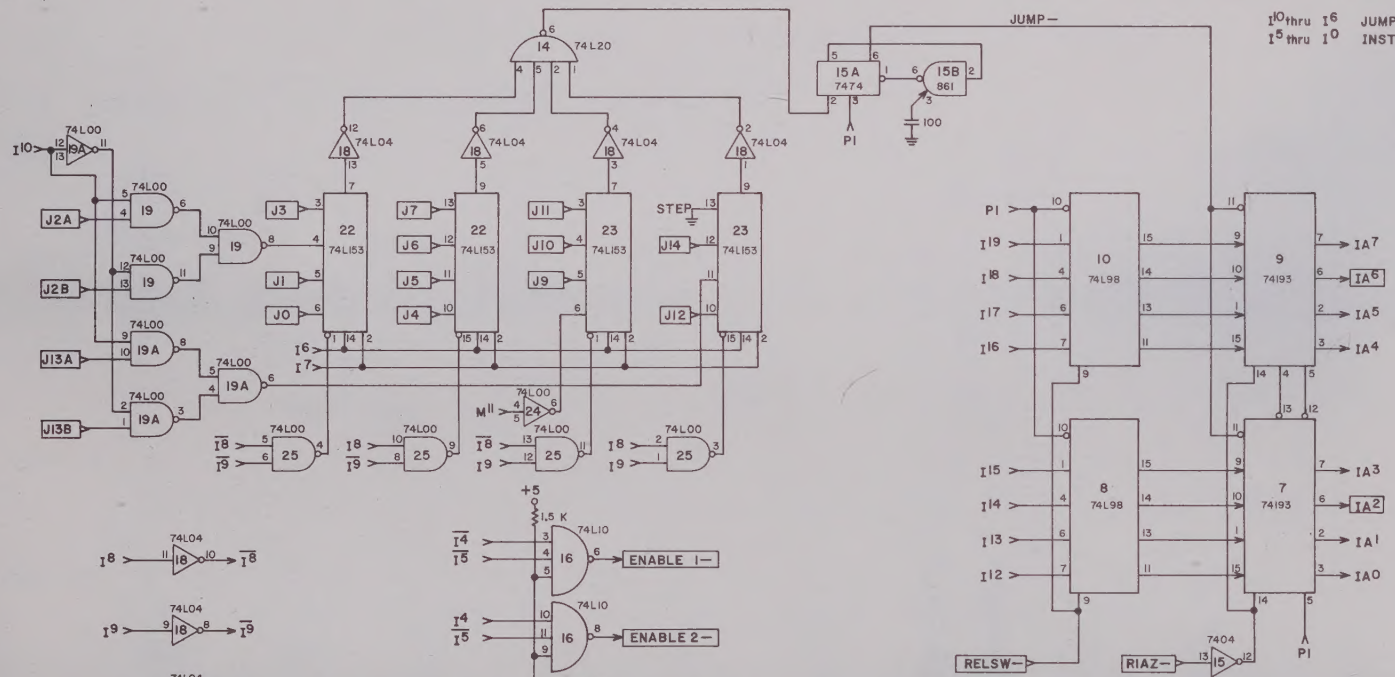


NICOLET INSTRUMENT CORPORATION	
TITLE	1090/1020 CONTROL BOARD 2A
CODE IDENT. NO.	SIZE C / DWG. NO.
SCALE	SHEET 1 of 2



I^{19} thru I^{12} JUMP DESTINATION
I^{11} BLANKING

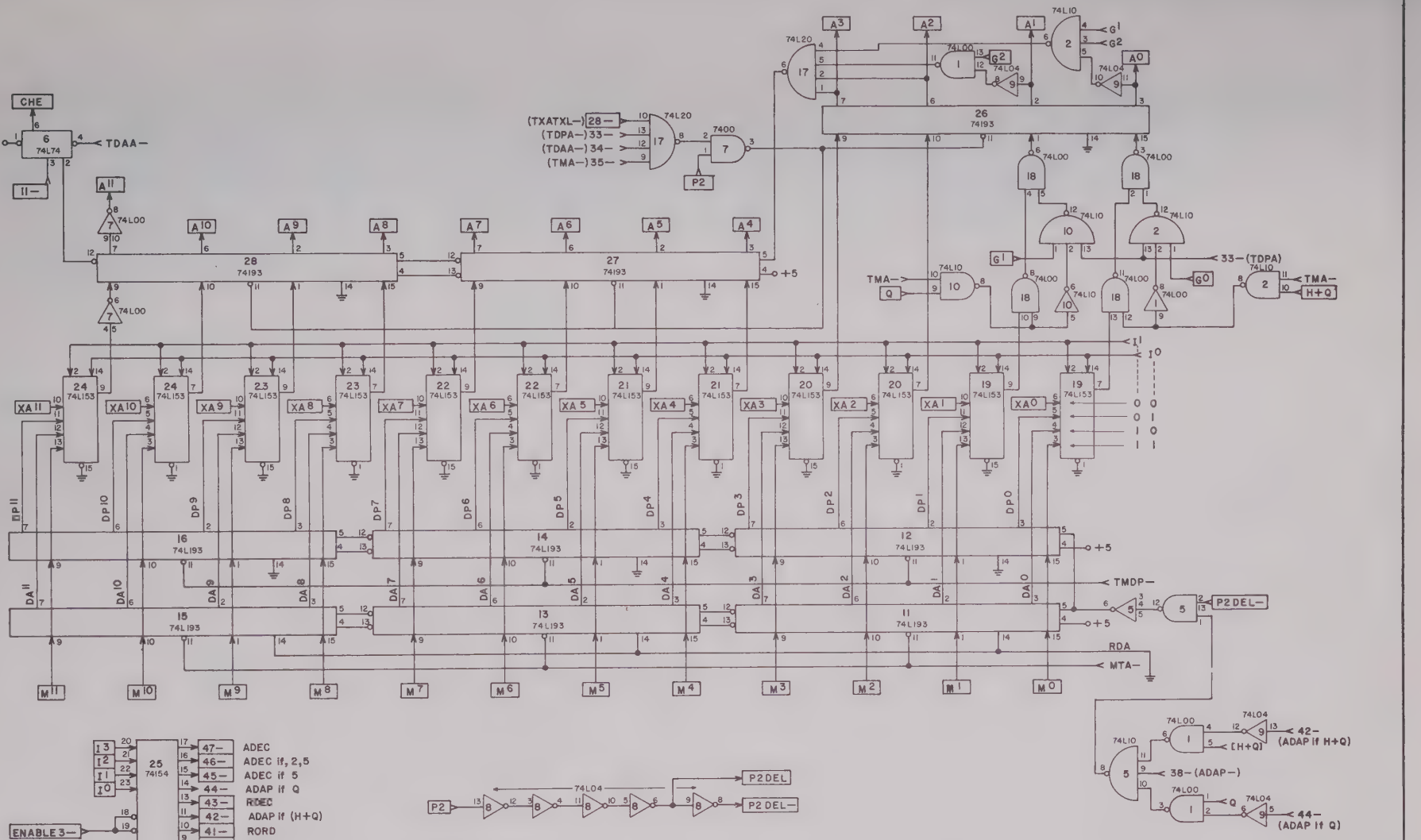
I^{10} thru I^{6} JUMP CONDITION
I^{5} thru I^{0} INSTRUCTION



ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

NICOLET INSTRUMENT CORPORATION

TITLE: 1090/1020 CONTROL BOARD 2A		
CODE IDENT. NO.	SIZE C	DWG. NO. -
SCALE		SHEET 2 of 2

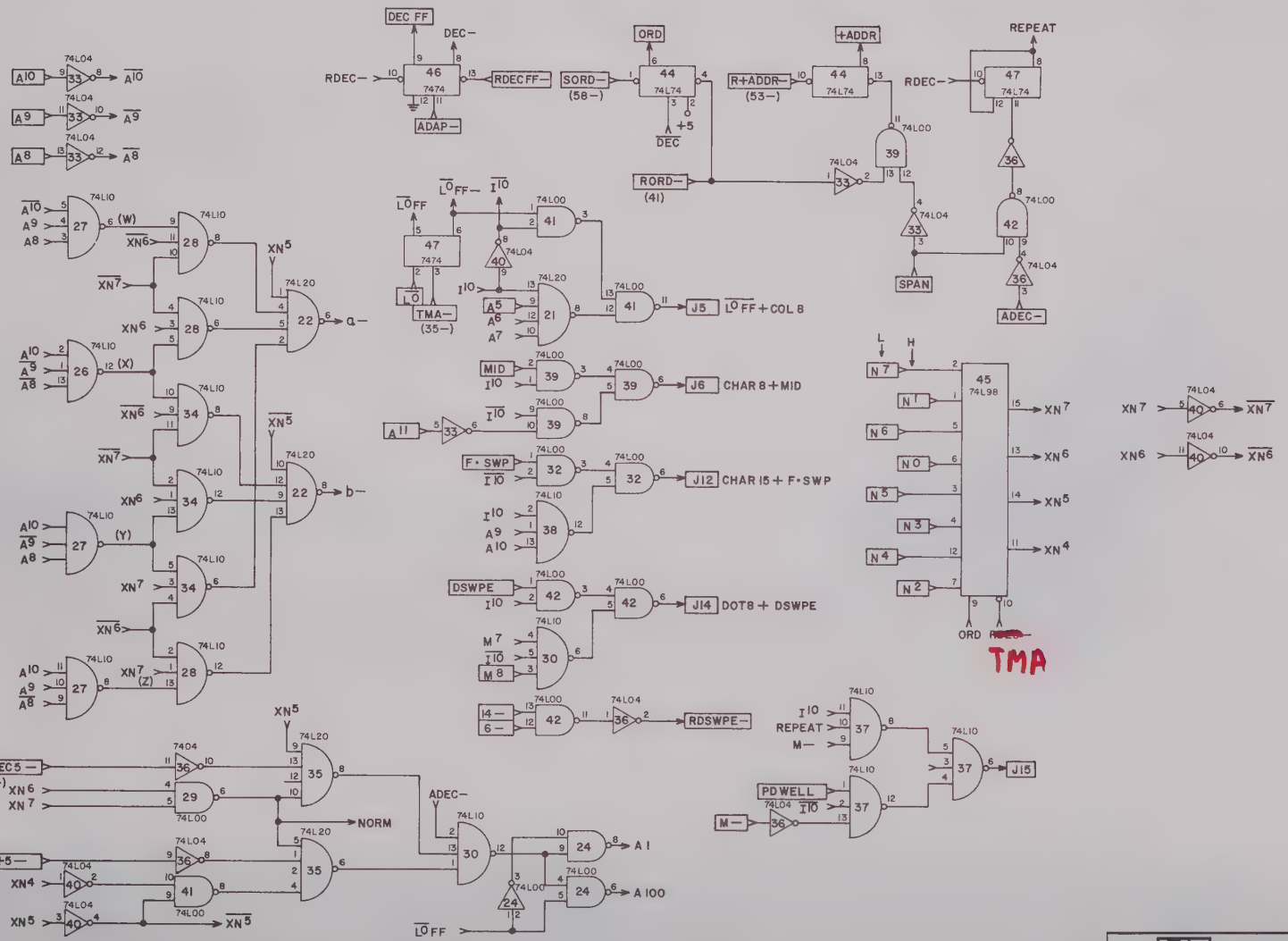


NICOLET INSTRUMENT CORPORATION

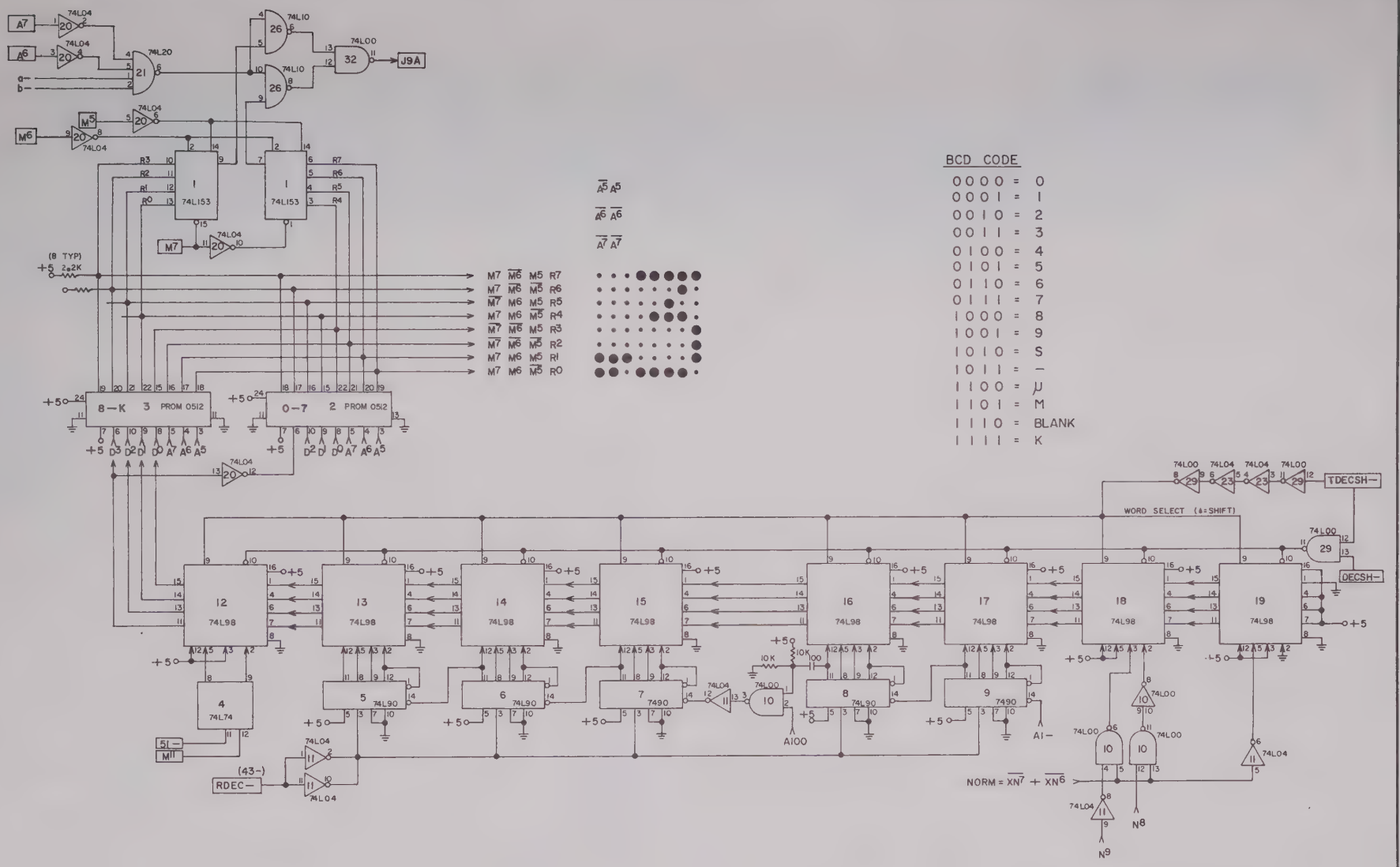
TITLE

1090/1020 ADDRESS BOARD 3A

CODE IDENT. NO.	SIZE	DWG. NO.
	C	
SCALE		SHEET 1 of 1



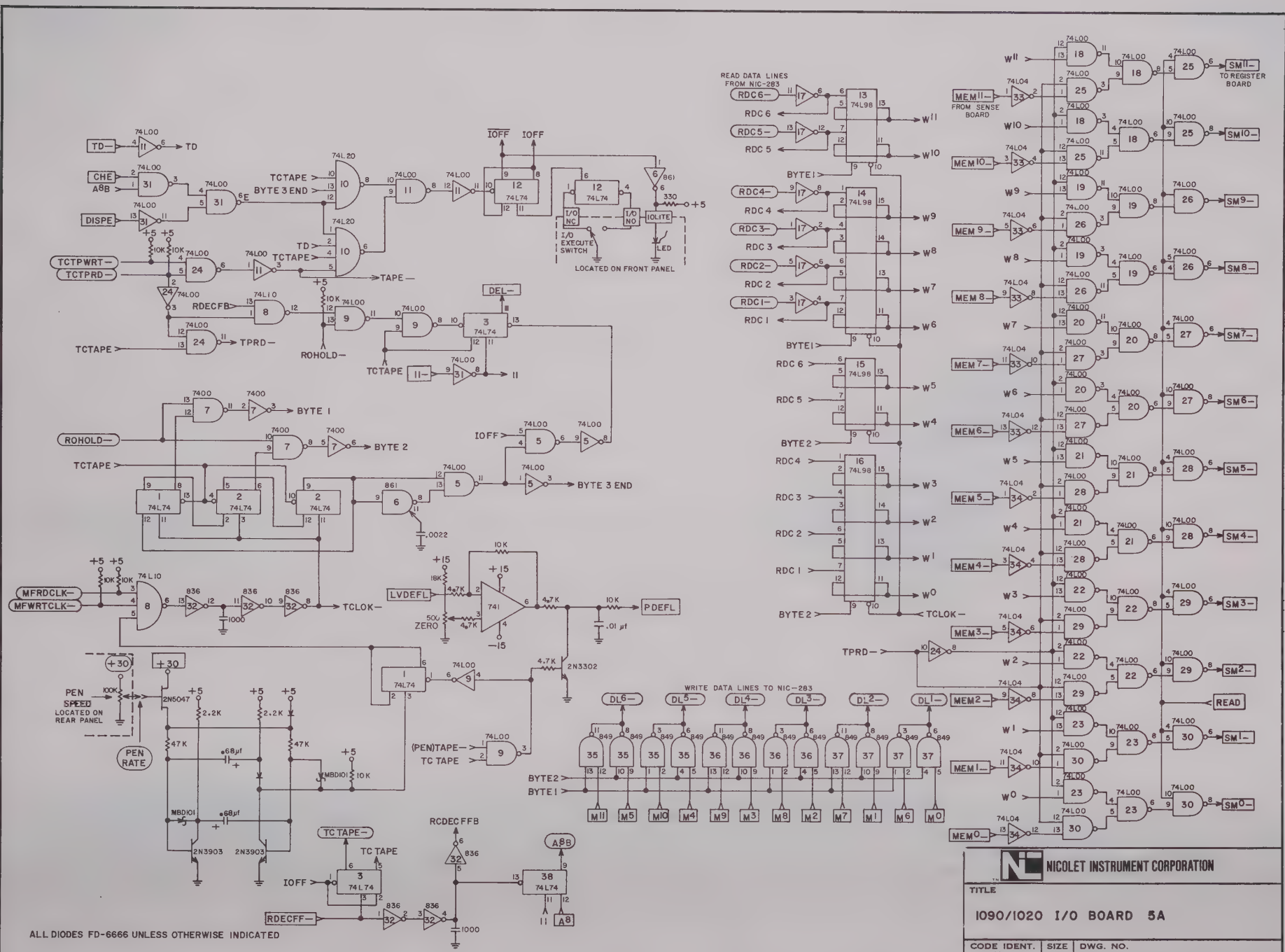
NICOLET INSTRUMENT CORPORATION		
TITLE: 1090/1020 DECIMAL BOARD 4A		
CODE IDENT. NO.	SIZE: C	DWG. NO.
SCALE		SHEET 1 of 2



NICOLET INSTRUMENT CORPORATION

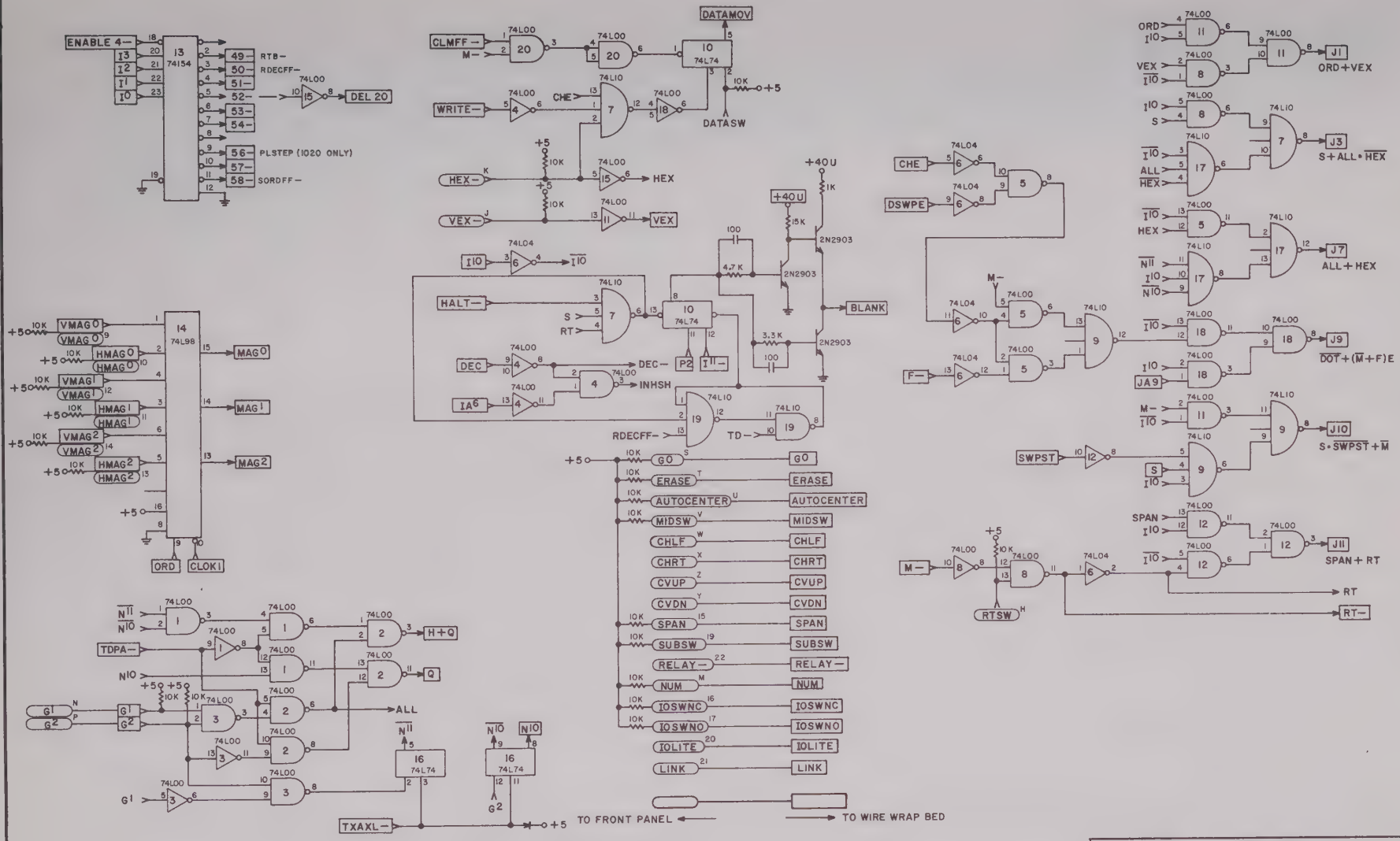
TITLE: 1090 / 1020 DECIMAL DECODER 4A

DRAWN	SIZE	DWG. NO.
DATE	C	
APPROVED	SCALE	SHEET 2 of 2


READ DATA LINES FROM NIC-283
RDC6— RDC6 RDC5— RDC5 RDC4— RDC4 RDC3— RDC3 RDC2— RDC2 RDC1— RDC1
BYTE1 BYTE2 TCLOK—
MEM11— MEM10— MEM9— MEM8— MEM7— MEM6— MEM5— MEM4— MEM3— MEM2— MEM1— MEM0—
FROM SENSE BOARD
W11 W10 W9 W8 W7 W6 W5 W4 W3 W2 W1 W0
SM11— SM10— SM9— SM8— SM7— SM6— SM5— SM4— SM3— SM2— SM1— SM0—
TO REGISTER BOARD
TPRD— READ
WRITE DATA LINES TO NIC-283
DL6— DL5— DL4— DL3— DL2— DL1—
M11 M5 M10 M4 M9 M3 M8 M2 M7 M1 M6 M0
TD— TD
CHE A8B DISPE
BYTE 3 END
TCTPWRT— TCTPRD— TCTAPE TAPE—
RDECFB ROHOLD— TPRD—
DEL— II— II
IOFF
I/O EXECUTE SWITCH
I/O NC I/O NO IOLITE LED
LOCATED ON FRONT PANEL
BYTE 1 BYTE 2 BYTE 3 END
MFRDCLK— MFWRTCLK— TCLOK—
LVDEFL PDEFL ZERO
PEN SPEED LOCATED ON REAR PANEL
PEN RATE
(PEN)TAPE— TC TAPE
TC TAPE— TC TAPE
RDECFF— RCDECFFB A8B
ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

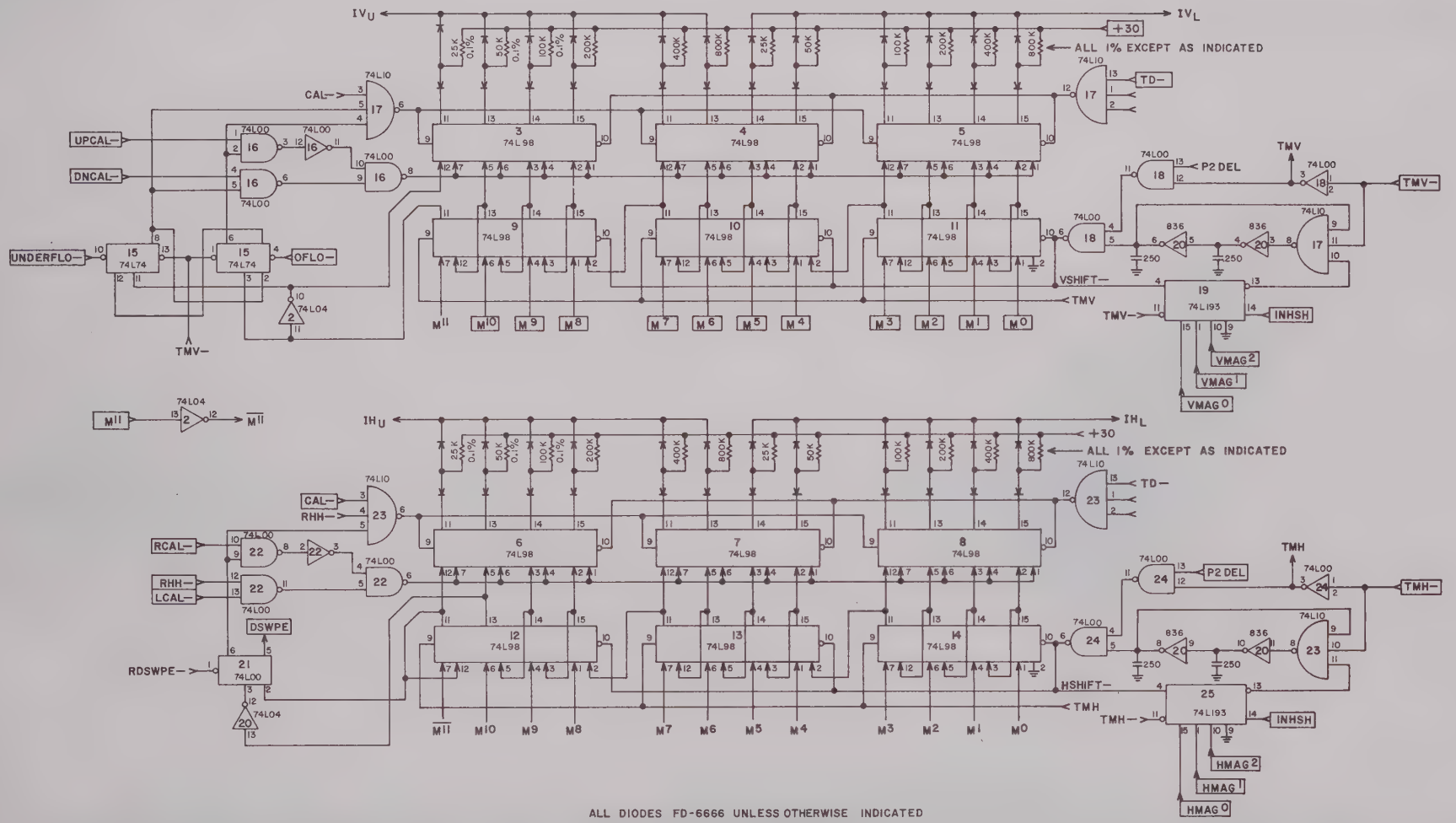
NICOLET INSTRUMENT CORPORATION

TITLE		
1090/1020 I/O BOARD 5A		
CODE IDENT. NO.	SIZE C	DWG. NO.
SCALE		SHEET 1 of 1



NICOLET INSTRUMENT CORPORATION

TITLE		
1090/1020 GATE BOARD 6A		
CODE IDENT. NO.	SIZE C	DWG. NO.
SCALE		SHEET 1 of 1



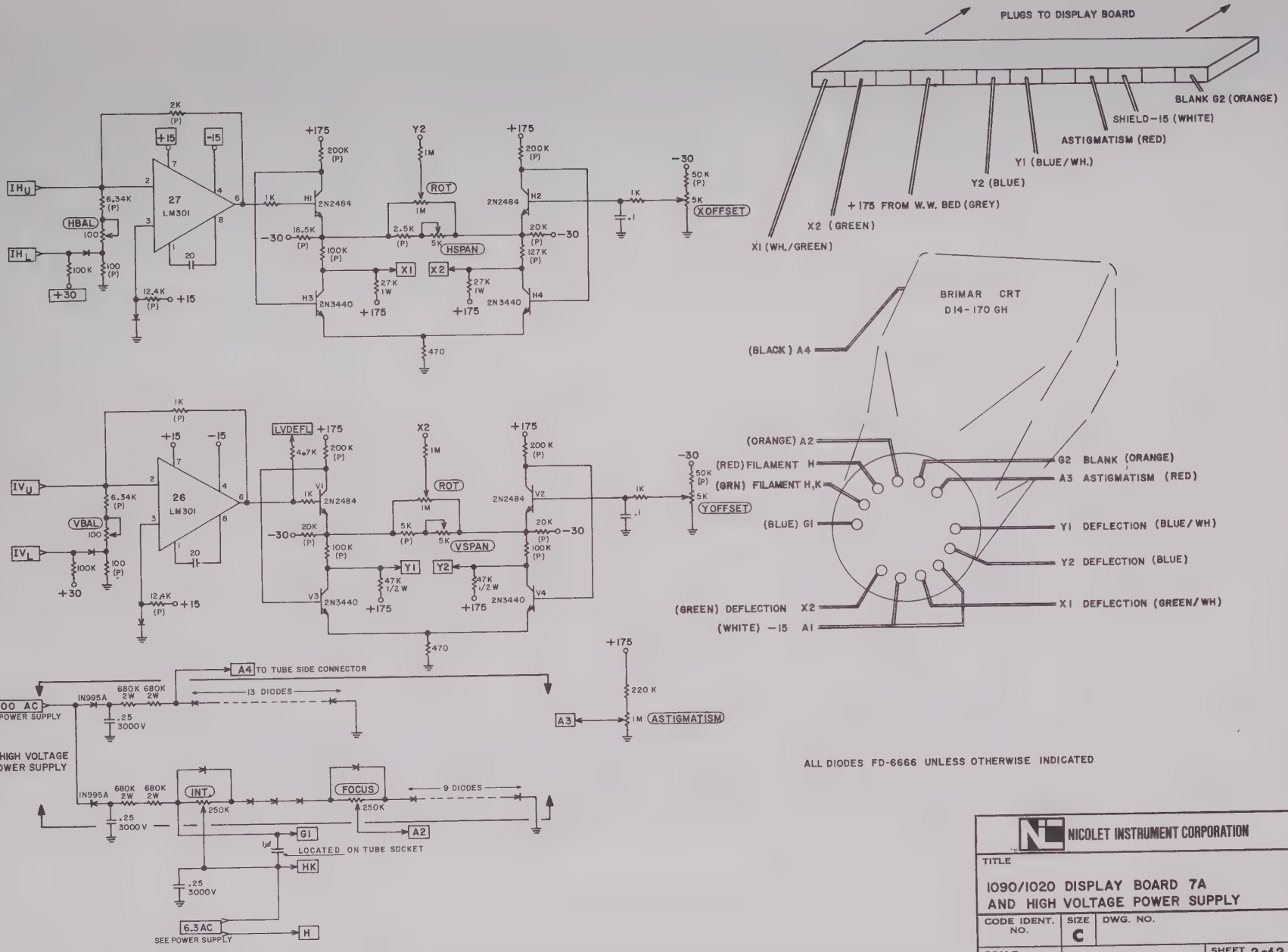
ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

NICOLET INSTRUMENT CORPORATION

TITLE

1090/1020 DISPLAY BOARD 7A

CODE IDENT. NO.	SIZE	DWG. NO.
	C	
SCALE		SHEET 1 of 2

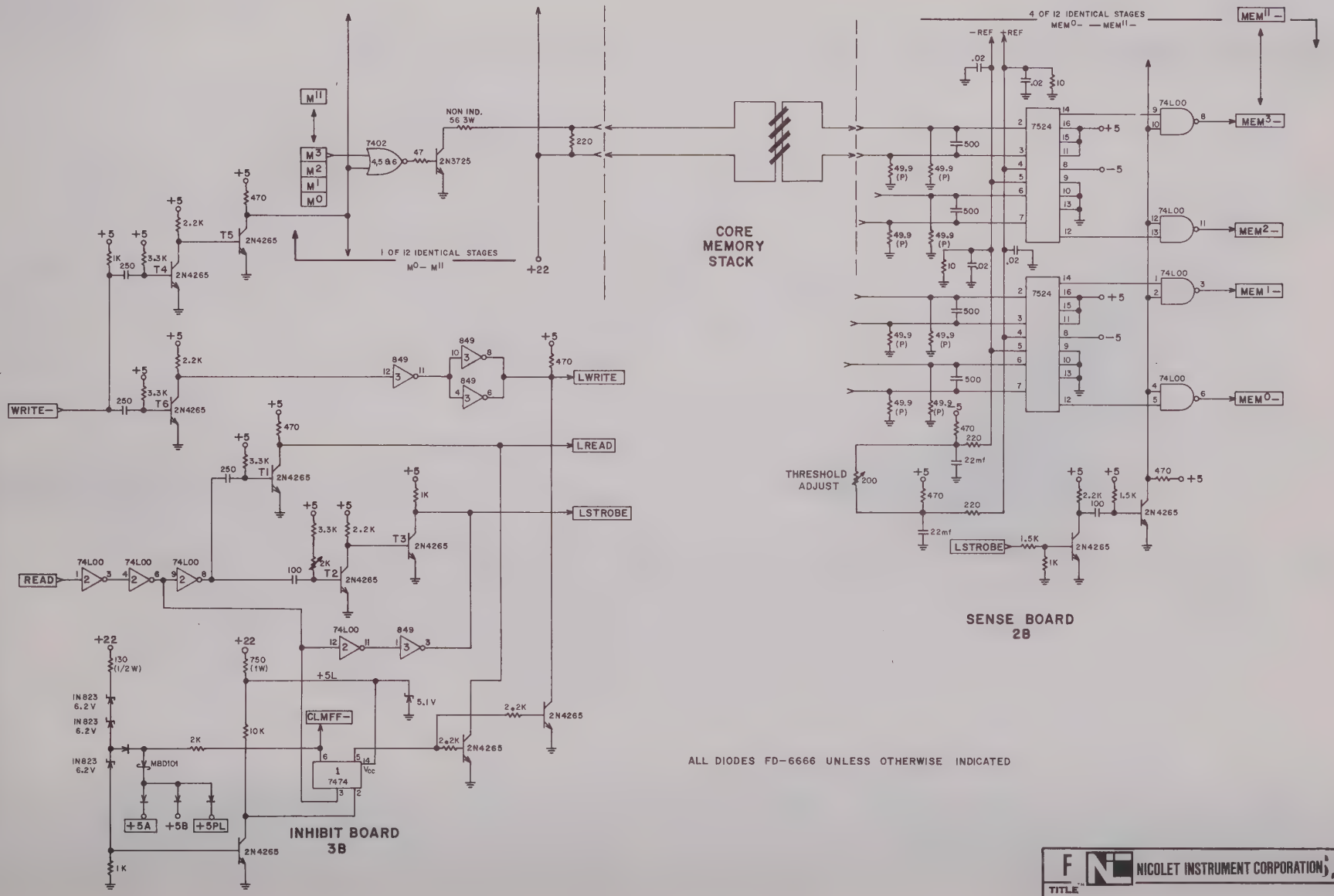


NICOLET INSTRUMENT CORPORATION

TITLE

1090/1020 DISPLAY BOARD 7A
AND HIGH VOLTAGE POWER SUPPLY

CODE IDENT. NO.	SIZE	DWG. NO.
	C	
SCALE		SHEET 2 of 2



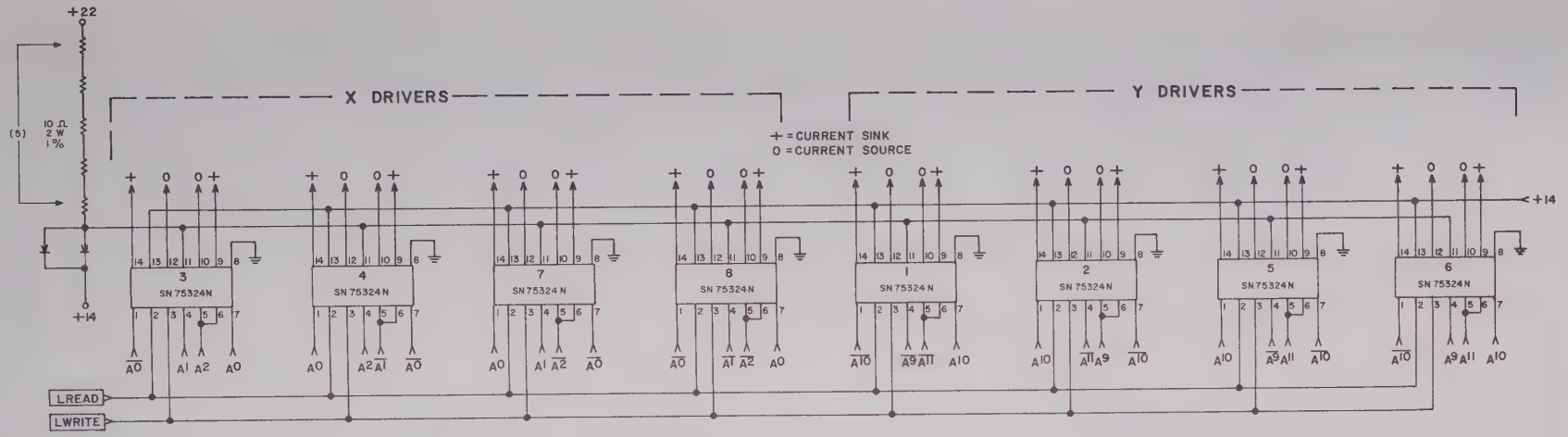
ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

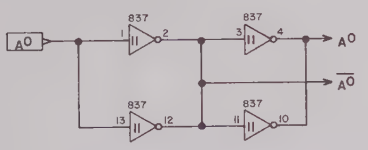
NICOLET INSTRUMENT CORPORATION, INC.

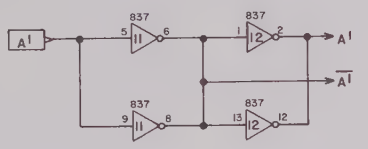
TITLE

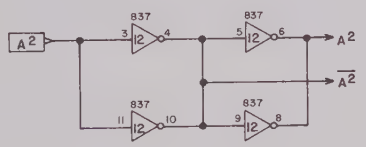
1090/1020 SENSE AND INHIBIT BOARDS 2B AND 3B

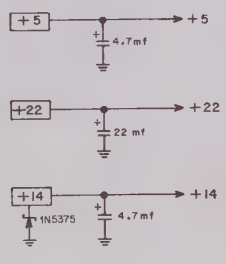
DRAWN	SIZE	DWG. NO.
DATE	C	
APPROVED	SCALE	SHEET 1 of 1

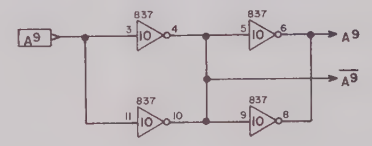


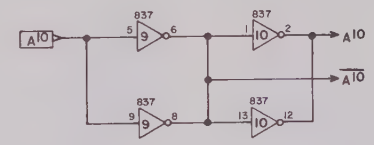


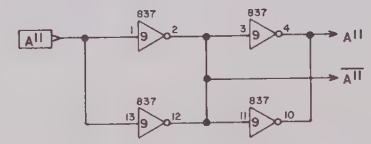












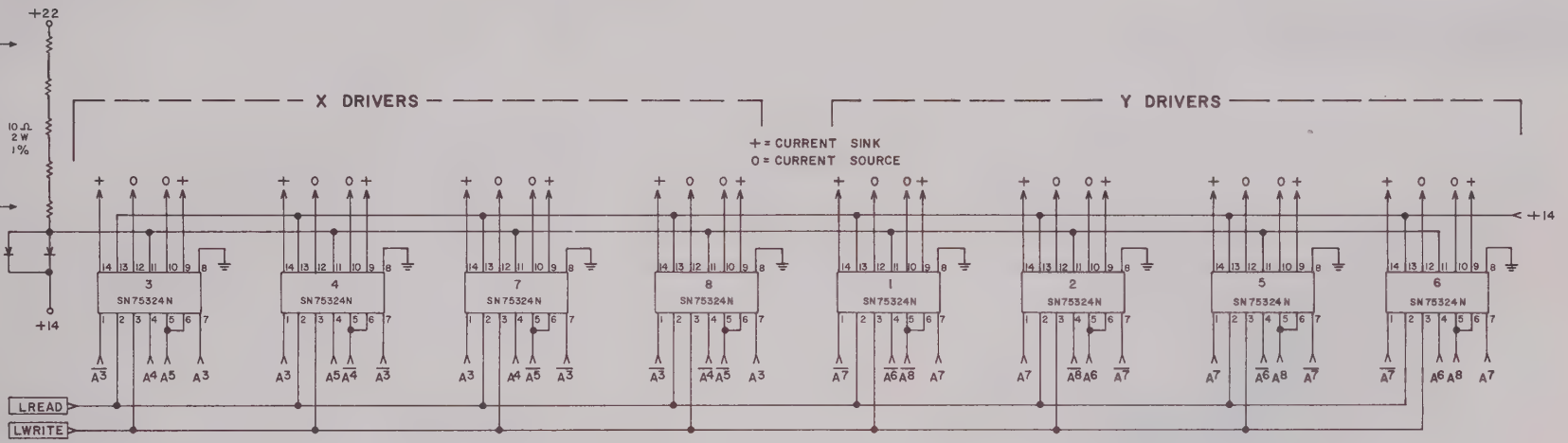
ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

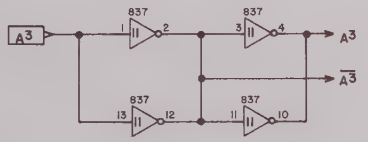
NICOLET INSTRUMENT CORPORATION

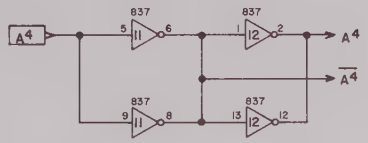
TITLE

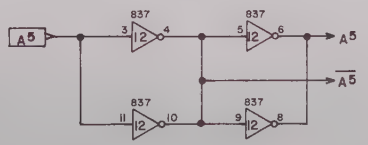
1090/1020 MEMORY DRIVER 4B

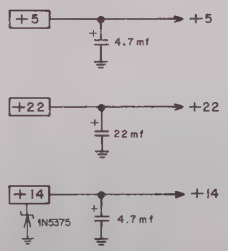
DRAWN	SIZE	DWG. NO.
DATE	C	
APPROVED	SCALE	SHEET 1 of 1

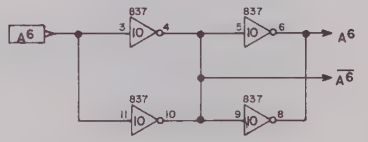


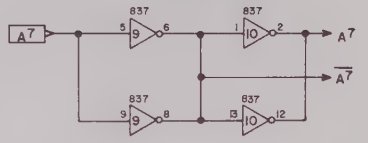


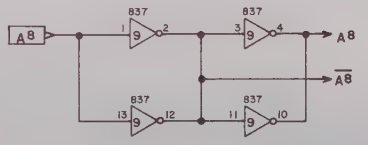












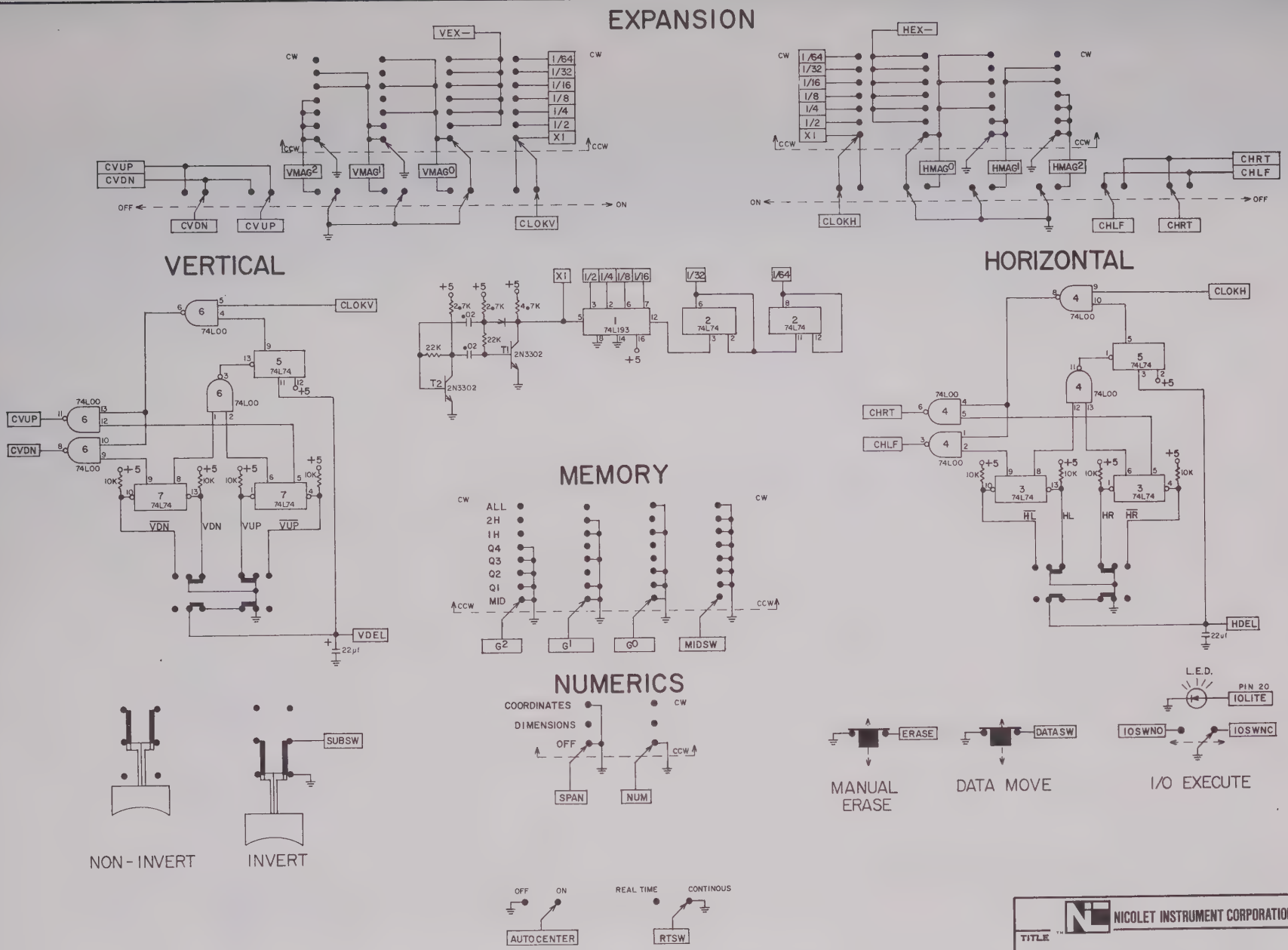
ALL DIODES FD-6666 UNLESS OTHERWISE INDICATED

NICOLET INSTRUMENT CORPORATION

TITLE

1090/1020 MEMORY DRIVER 7B

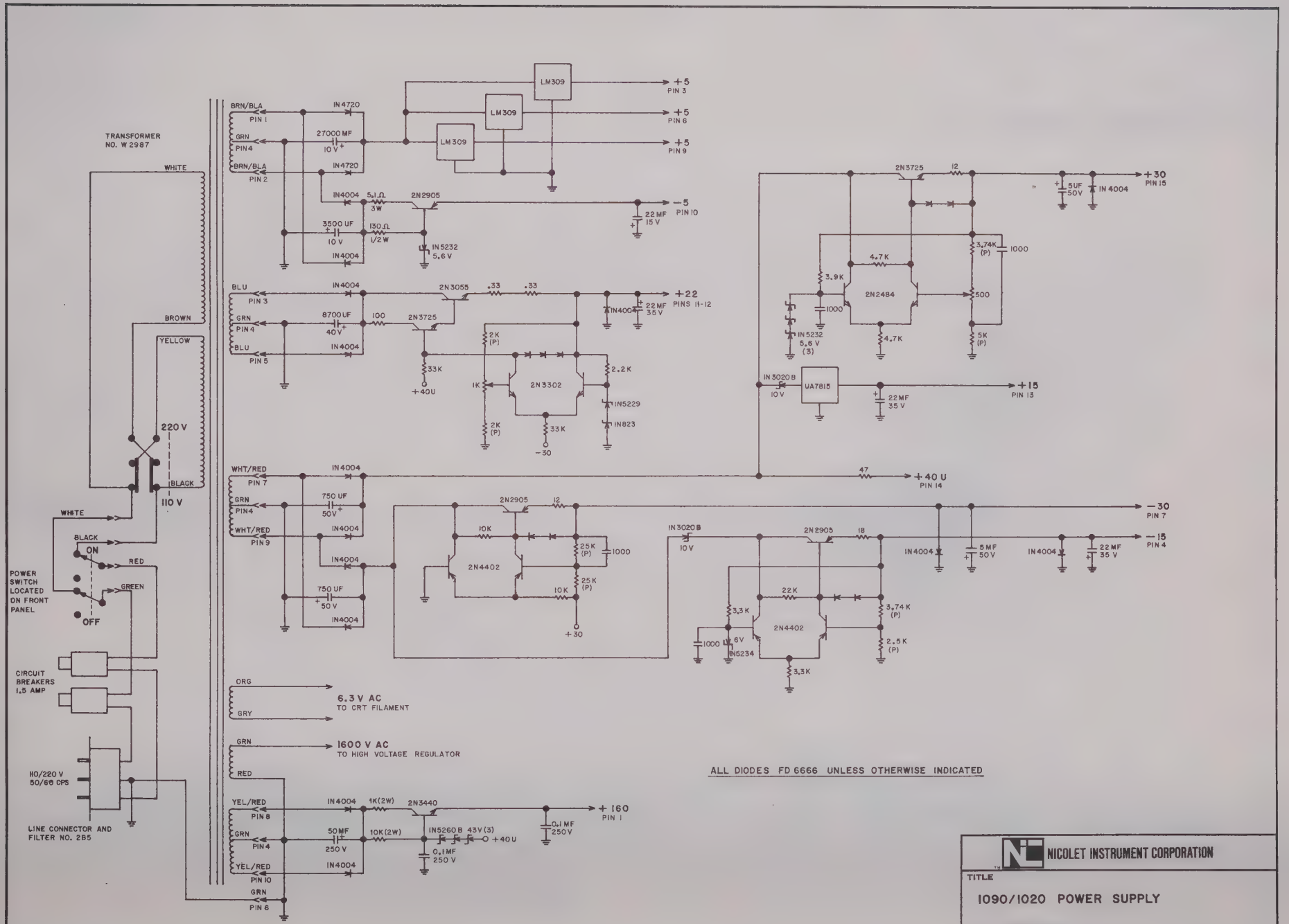
DRAWN	SIZE	DWG. NO.
DATE	C	
APPROVED	SCALE	SHEET 1 of 1



NICOLET INSTRUMENT CORPORATION

TITLE: 1090 / 1020 FRONT PANEL

DRAWN	SIZE C	DWG. NO.
DATE		
APPROVED	SCALE	SHEET 1 of 1



ALL DIODES FD 6666 UNLESS OTHERWISE INDICATED

NICOLET INSTRUMENT CORPORATION

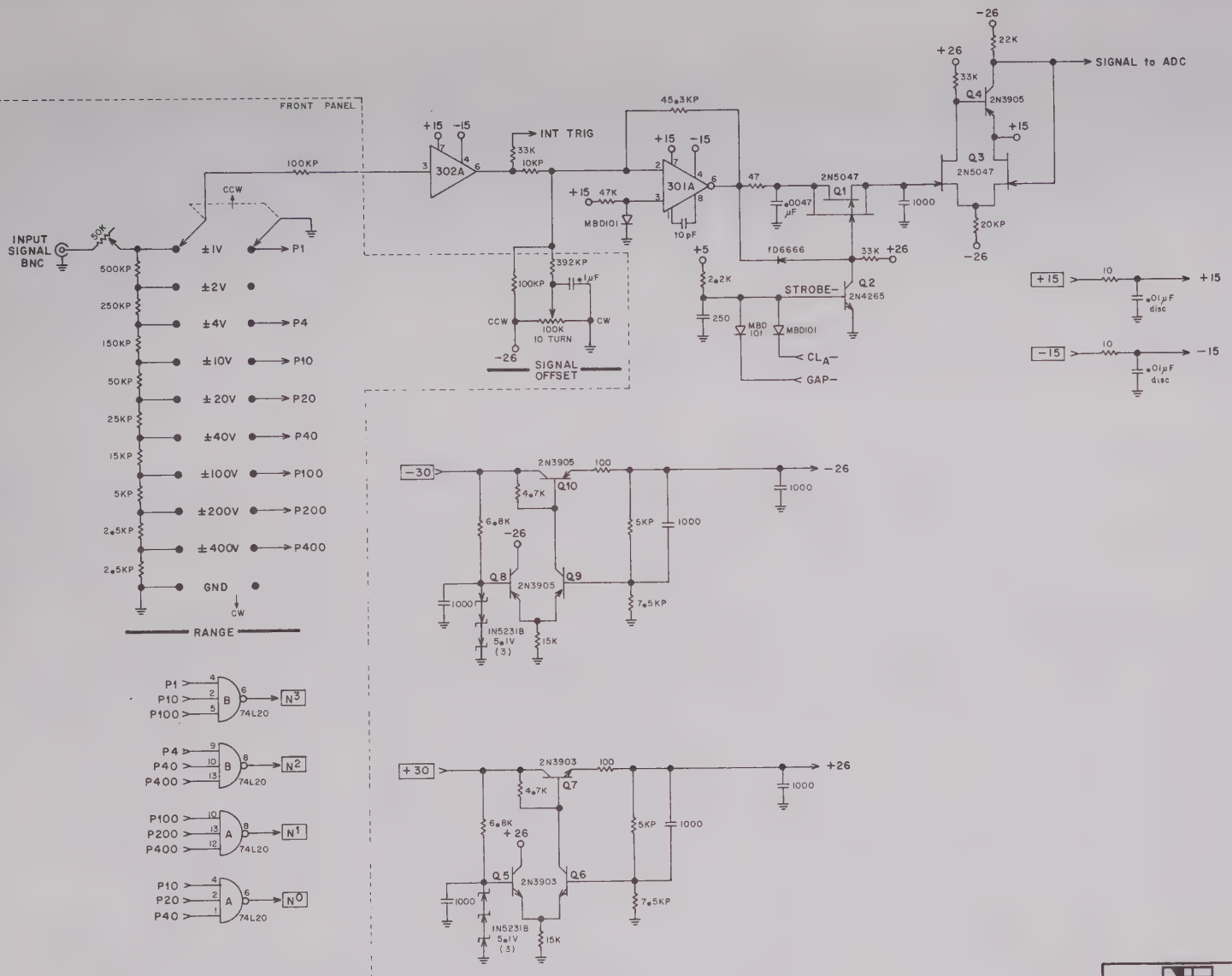
TITLE

1090/1020 POWER SUPPLY

CODE IDENT. NO.	SIZE	DWG. NO.
	C	

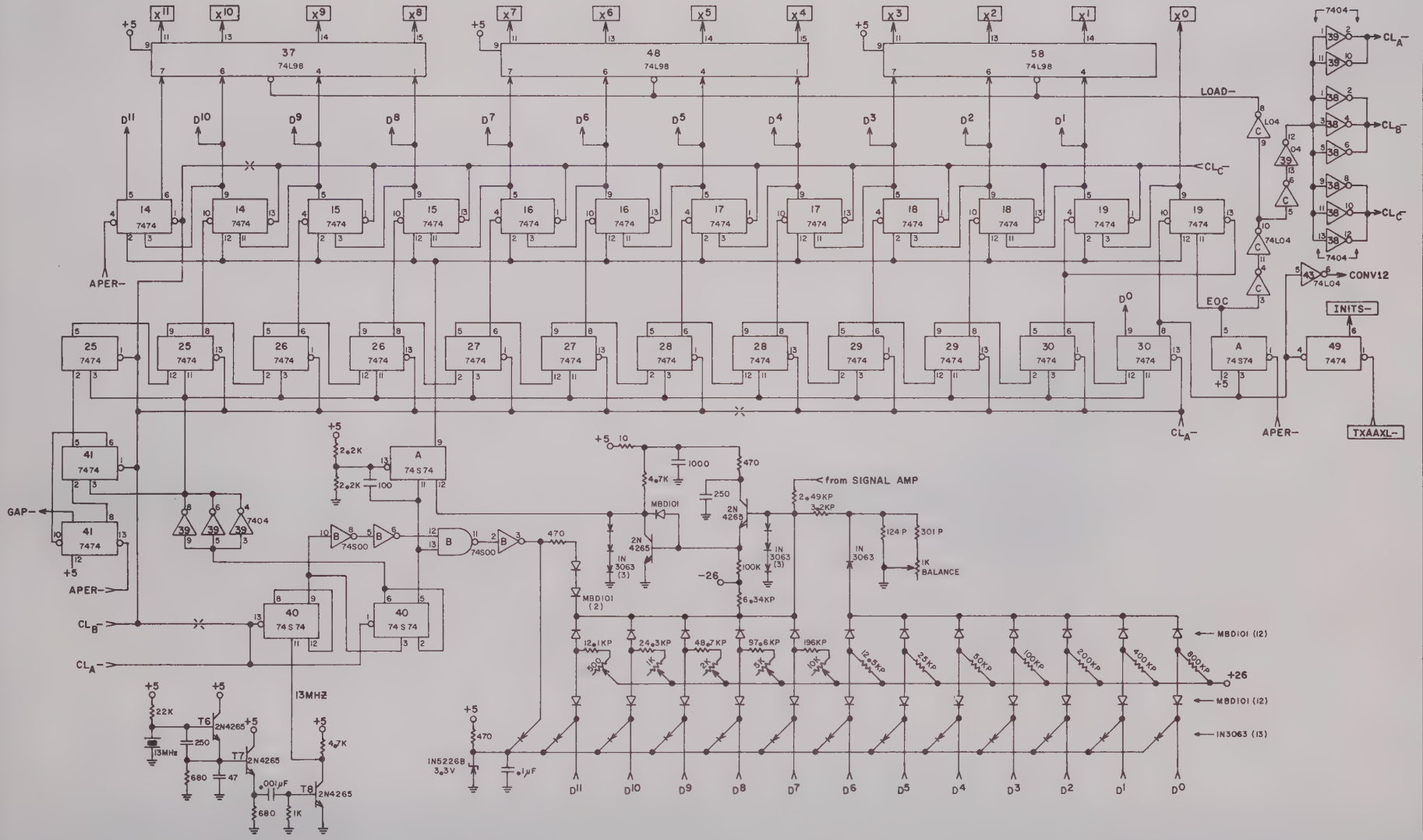
SCALE

SHEET 1 of 1



NICOLET INSTRUMENT CORPORATION

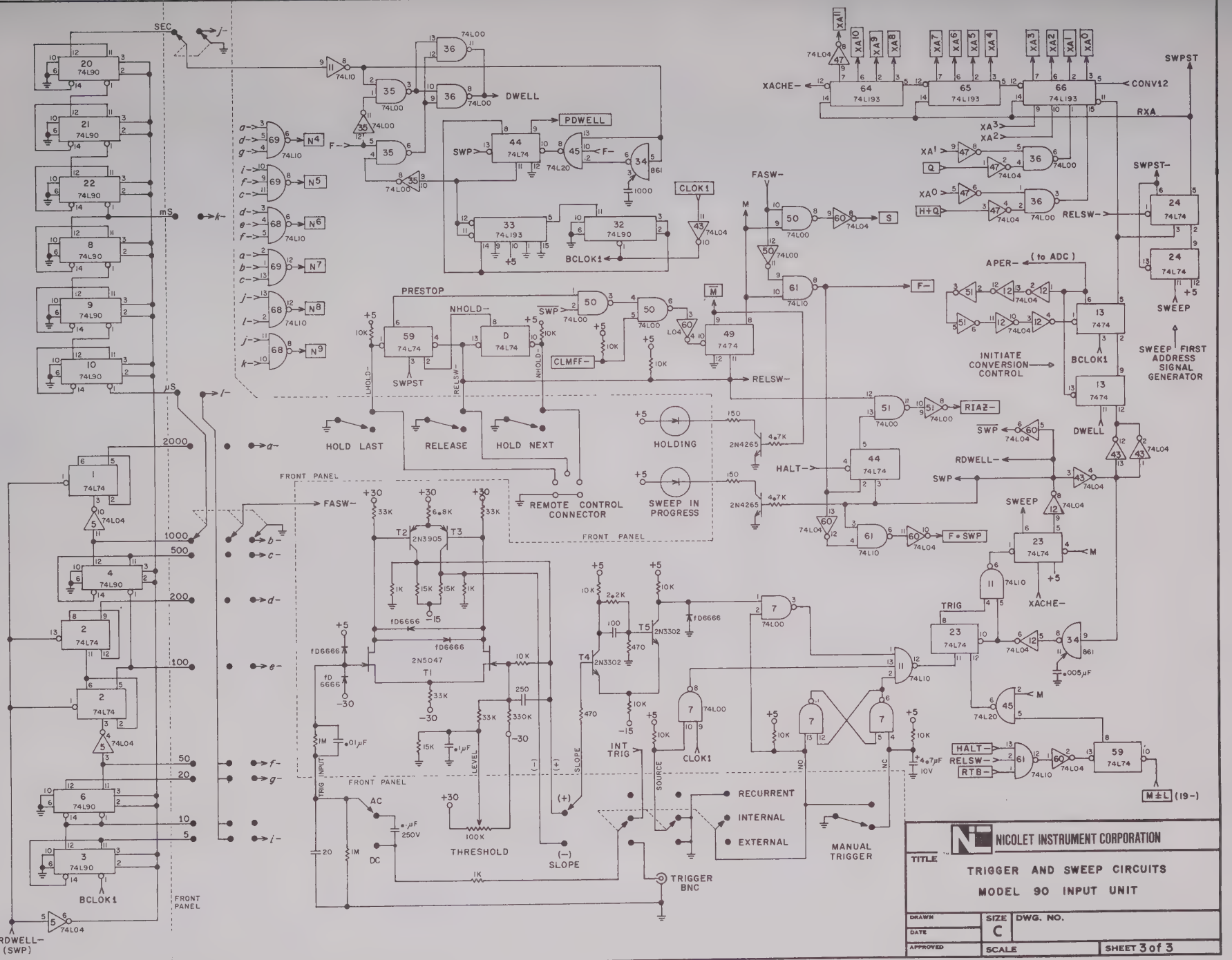
TITLE	SIGNAL AMPLIFIER MODEL 90 INPUT UNIT		
DRAWN		SIZE C	DWG. NO.
DATE			
APPROVED		SCALE	SHEET 1 of 3



NICOLET INSTRUMENT CORPORATION

TITLE: ANALOG TO DIGITAL CONVERTER MODEL 90 INPUT UNIT

DRAWN	SIZE	DWG. NO.
DATE	C	
APPROVED	SCALE	SHEET 2 of 3


SEC
mS
µS
2000
1000
500
200
100
50
20
10
5
BCLOK1
RDWELL–
(SWP)
FRONT PANEL
DWELL
PDWELL
PRESTOP
NHOLD–
SWP
SWPST
CLMFF–
RELSW–
HOLD LAST
RELEASE
HOLD NEXT
REMOTE CONTROL CONNECTOR
HOLDING
SWEEP IN PROGRESS
FASW–
HALT–
RIAZ–
RDWELL–
F•SWP
INITIATE CONVERSION CONTROL
APER–
(to ADC)
SWEEP FIRST ADDRESS SIGNAL GENERATOR
SWPST–
RELSW–
CONV12
RXA
XACHE–
TRIG
INT TRIG
CLOK1
TRIG INPUT
AC
DC
THRESHOLD
SLOPE
SOURCE
RECURRENT
INTERNAL
EXTERNAL
MANUAL TRIGGER
TRIGGER BNC
HALT–
RELSW–
RTB–
M±L (19–)
NICOLET INSTRUMENT CORPORATION
TRIGGER AND SWEEP CIRCUITS
MODEL 90 INPUT UNIT
DRAWN
DATE
APPROVED
SIZE C
DWG. NO.
SCALE
SHEET 3 of 3

1090 WIRE WRAP

A0	1A-36	3A-31	4B-3		
A1	1A-38	3A-33	4B-5		
A2	1A-42	3A-35	4B-7		
A3	1A-44	3A-37	7B-3		
A4	1A-73	3A-32	7B-5		
A5	1A-75	3A-30	4A-65	7B-7	
A6	1B-4	3A-22	4A-69	7B-9	
A7	1B-6	3A-20	4A-67	7B-11	
A8	1B-36	3A-18	4A-75	7B-13	5A-26
A9	1B-38	3A-16	4B-9	4A-73	
A10	1B-58	3A-14	4B-11	4A-61	
A11	1B-60	3A-12	4B-13	4A-63	
47- ADEC-	3A-54	4A-8			
45- (ADEC 5)-	3A-65	4A-3			
46- (ADEC 2+5)-	3A-67	4A-13			
38- ADAP-	3A-63	4A-33			
AUTOCENTER	1A-25	6A-12			
BLANK	6A-74	7A-75			
CHE	3A-8	5A-30	6A-54		
CHLF	1A-23	6A-8			
CHRT	1A-27	6A-6			
CLMFF-	3B-60	6A-3	PL-46		
CLOK1	2A-14	6A-17	PL-34		
CVDN	1A-21	6A-4			
CVUP	1A-18	6A-2			
DATAMOV	1A-15	6A-57			
DEC	4A-35	6A-69			
40- DECSH-	3A-55	4A-19			
DEL-	2A-8	5A-10			
52- DEL20-	2A-2	6A-70			
DSWPE	4A-10	5A-24	6A-61	7A-34	
ENABLE #1-	1A-28	2A-12			
ENABLE #2-	1A-5	2A-16			
ENABLE #3-	2A-19	3A-58			
ENABLE #4-	2A-27	6A-49			
ERASE	1A-19	6A-14	PL-17		
F-	6A-63	PL-59			
F*SWP	4A-68	PL-63			
G0	3A-52	6A-16			
G1	3A-50	6A-32			
G2	3A-42	6A-30			
H+Q	3A-76	6A-75	PL-5		
32- HALT-	2A-6	3A-73	6A-9	PL-22	
HMAG0	6A-20	7A-8			
HMAG1	6A-22	7A-12			
HMAG2	6A-26	7A-10			
I0	1A-20	2A-70	3A-66	6A-43	
I1	1A-22	2A-68	3A-64	6A-45	
I2	1A-24	2A-66	3A-62	6A-47	
I3	1A-26	2A-64	3A-60	6A-51	
I10	2A-57	4A-22	6A-33		
I11-	2A-55	6A-55			
IA6	2A-73	6A-73			
INHSH	6A-52	7A-6	7A-44		

INITS-	2A-3	PL-52					
IOLITE	5A-18	6A-5					
IOSWNC	5A-14	6A-13					
IOSWNO	5A-16	6A-11					
J1	2A-46	6A-42					
J2A	2A-23						
J2B	2A-25						
J3	2A-42	6A-58					
J4 +ADDR	2A-52	4A-56					
J5	2A-50	4A-20					
J6	2A-48	4A-64					
J7	2A-44	6A-71					
J9	2A-32	6A-65					
J9A	6A-56	4A-70					
J10	2A-30	6A-48					
J11	2A-28	6A-27					
J12	2A-24	4A-66					
J13A	2A-5						
J13B	2A-7	PL-10					
J14	2A-26	4A-12					
J15	2A-29	4A-15					
L0-	1A-54	4A-21					
LREAD	3B-19	4B-17	7B-17				
LSTROBE	2B-44	3B-23					
LWRITE	3B-33	4B-15	7B-15				
LHDEFL-	7A-5	PL-39					
LVDEFL-	5A-41	7A-76	PL-2				
M-	2A-1	4A-57	6A-67	PL-50			
M0	1A-60	3A-47	5A-3	7A-7	3B-6	PL-75	
M1	3B-8	1A-62	3A-43	5A-9	7A-9	PL-69	
M2	3B-10	1A-56	3A-41	5A-15	7A-11	PL-61	
M3	3B-12	1A-66	3A-36	5A-21	7A-13	PL-57	
M4	3B-14	1A-64	3A-25	5A-27	7A-15	PL-49	
M5	3B-16	1A-58	3A-26	4A-71	5A-33	7A-17	PL-47
M6	1B-16	3B-64	3A-23	4A-16	5A-5	7A-67	PL-45
M7	1B-26	3B-66	3A-19	4A-76	5A-11	7A-69	PL-43
M8	1B-24	3B-68	3A-13	4A-1	5A-17	7A-71	PL-38
M9	1B-18	3B-70	3A-9	5A-23	7A-74	PL-36	
M10	1B-20	3B-72	3A-7	5A-29	7A-72	PL-28	
M11	1B-22	3B-74	2A-34	2A-38	3A-3	5A-35	4A-74
	4A-74	7A-70	PL-24				
MAG0	1A-11	6A-25					
MAG1	1A-9	6A-23					
MAG2	1A-7	6A-21					
MEM0-	2B-4	5A-45					
MEM1-	2B-6	5A-47					
MEM2-	2B-20	5A-49					
MEM3-	2B-22	5A-51					
MEM4-	2B-34	5A-53					
MEM5-	2B-36	5A-55					
MEM6-	2B-48	5A-57					
MEM7-	2B-50	5A-59					
MEM8-	2B-60	5A-61					
MEM9-	2B-62	5A-64					
MEM10-	2B-70	5A-66					
MEM11-	2B-72	5A-68					

MID 4A-62 PL-30
MIDSW 6A-10 PL-32
11- M-L DATAMOV 1A-33 3A-2 5A-22
19- M+-L 1B-2 PL-53
N0 4A-46 PL-37
N1 4A-36 PL-35
N2 4A-48 PL-33
N3 4A-42 PL-31
N4 4A-50 PL-29
N5 4A-34 PL-27
N6 4A-44 PL-25
N7 4A-38 PL-23
N8 4A-4 PL-21
N9 4A-6 PL-19
N10 1A-2 6A-68
NUM 4A-72 6A-34
ORD 4A-52 6A-19
OVERFLO- 1B-72 7A-68
P2 2A-45 3A-6 6A-66
P2DEL 1A-3 3A-10
P2DEL- 3A-4 7A-14
PDWELL 4A-11 PL-26
~~56- PLSTEP- 6A-29 PL-20~~
Q 3A-38 6A-64 PL-3
53- R+ADDR- 4A-54 6A-31
43- RDEC- 3A-61 4A-32
50- RDECFF- 4A-30 5A-8 6A-37 PL-1
RDSWPE- 4A-9 7A-35
READ 1A-6 2A-22 5A-74 3B-54
RELSW- 2A-18 PL-41
RIAZ- 2A-20 PL-42
RADDOFLO- 1B-70
41- RORD- 3A-53 4A-58
49- RTB- 6A-41 PL-51
S 6A-46 PL-55
51- SETSIGN- 4A-2 6A-35
SM0- 1A-34 5A-46
SM1- 1A-32 5A-48
SM2- 1A-50 5A-50
SM3- 1A-46 5A-52
SM4- 1A-71 5A-54
SM5- 1A-74 5A-56
SM6- 5A-58 1B-12
SM7- 5A-60 1B-8
SM8- 5A-62 1B-34
SM9- 5A-70 1B-30
SM10- 5A-72 1B-66
SM11- 5A-76 1B-62
58- SORD- 4A-60 6A-36
57-
SPAN 4A-59 6A-15
SUBSW 1A-13 6A-7
SWPST 6A-38 PL-48
8- TD- 1A-12 5A-20 7A-52 6A-53
39- TDECSH- 3A-57 4A-17 - PL-20
33- TDPA- 3A-71 6A-62

35- TMA-	3A-59	4A-14					
14- TMCV IF AUTOCENTER-	1A-29	4A-7					
6- TMH-	1A-14	4A-5	7A-16				
5- TMV-	1A-16	7A-50					
28- TXAXL-	1A-1	3A-75	6A-76	PL-44			
UNDERFLO-	7A-66	1B-74					
VMAG0	6A-18	7A-42					
VMAG1	6A-24	7A-48					
VMAG2	6A-28	7A-46					
VEX	1A-17	6A-44					
10- WRITE-	1A-8	2A-17	6A-60	3B-48			
X0	1A-31	PL-76					
X1	1A-30	PL-70					
X2	1A-52	PL-72					
X3	1A-48	PL-74					
X4	1A-76	PL-68					
X5	1A-68	PL-66					
X6	1B-14	PL-64					
X7	1B-10	PL-62					
X8	1B-32	PL-60					
X9	1B-28	PL-58					
X10	1B-68	PL-56					
X11	1B-64	PL-54					
XA0	3A-49	PL-7					
XA1	3A-45	PL-9					
XA2	3A-29	PL-13					
XA3	3A-34	PL-11					
XA4	3A-27	PL-6					
XA5	3A-28	PL-8					
XA6	3A-21	PL-4					
XA7	3A-17	PL-15					
XA8	3A-15	PL-14					
XA9	3A-11	PL-12					
XA10	3A-5	PL-16					
XA11	3A-1	PL-18					
GND BUS A39 & 40	1A 2A 3A 4A 5A 6A 7A			PS11			
B39 & 40	1B 2B 3B 4B 5B 6B 7B			PS14			
B41 & 42	1B 2B 3B 4B 5B 6B 7B						
+5 BUS A77 & 78	1A 2A						
A77 & 78		3A 4A 5A 6A 7A					
B77 & 78	1B 2B 3B 4B 5B 6B 7B						
-30 YELLOW	7A-2	PL-65		PS9			
-15 GREEN	7A-1	5A-37	PL-67		PS12		
-5 WH/OR/BRN	2B-1		PS6				
GND WHITE	PL-40	PL-79	PL-80	PS8			
+5A	3A-78	3B-71		PS10			
+5B	7B-77		PS13				
+5P	3B-73	PL-77	PL-78		PS7		
+15	5A-43	7A-3	PL-71		PS3		
+22 RED	3B-3	3B-4	3B-75	3B-76	4B-1	7B-1	PS4&5
+30 ORANGE	7A-4	5A-42		PS1			
+30 ORANGE	PL-73		PS1				
+40U BLUE	6A-72		PS2				
+14Z	4B-36	7B-36					
+160 GREY	PIN ON TOP OF DISPLAY BD				PS15		

FRONT PANEL	
A	GND
B	
C	
D	
E	
F	
H	RTSW
J	VEX-
K	HEX-
L	DATASW
M	NUM
N	G1
P	G2
R	
S	GØ
T	ERASE
U	AUTOCENTER
V	MIDSW
W	CHLF
X	CHRT
Y	CVDN
Z	CVUP
1	+5
2	
3	
4	
5	
6	
7	
8	
9	VMAGØ
10	HMAGØ
11	HMAG1
12	VMAG1
13	HMAG2
14	VMAG2
15	SPAN
16	IOSWNC
17	IOSWNO
18	
19	SUBSW
20	IOLITE
21	LINK
22	LINK (RELAY)

I/O HARNESS		
GND	5AR-1	RP-A
MFRDCLK-	5AR-2	RP-B
MFWRTCLK-	5AR-3	RP-C
RDC5-	5AR-4	RP-D
RDC6-	5AR-5	RP-E
RDC4-	5AR-6	RP-F
RDC3-	5AR-7	RP-H
RDC1-	5AR-8	RP-J

RDC2-	5AR-9	RP-K
A8B	5AR-1Ø	RP-L
TCTAPE-	5AR-A	RP-M
TCTPWRT-	5AR-B	RP-N
TCTPRD-	5AR-C	RP-P
ROHOLD-	5AR-D	RP-R
DL6-	5AR-E	RP-S
DL5-	5AR-F	RP-T
DL4-	5AR-H	RP-U
DL3-	5AR-J	RP-V
DL2-	5AR-K	RP-W
DL1-	5AR-L	RP-X